Intrusive Vowels in Cruceño Spanish

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Background

Intrusive vowels are short vowels that intrude between two consonants in a cluster.

Example: [kreyendo] → [kreyendo]

Intrusive Vowels are generally considered to be different from true epenthetic vowels:

- Shorter length
- Don’t create new syllables or affect stress placement
- Previous descriptions and claims:
  - Quality of Intrusive Vowel is similar to the following Nucleic Vowel (in [1][2][3])
  - Intrusive vowel is most likely to present after a dental consonant [3]
  - Intrusive Vowels are longer before high vowels [2]
  - Intrusive vowels are longer after voiced consonants [3][4]
  - Intrusive vowels are longer word-initially and in stressed syllables [5]

Research Questions

- What are the characteristics of the Intrusive Vowel in terms of length and quality?
- Do the factors of quality of the preceding consonant, quality of the following nucleic vowel, position in word, stress, or type of cluster affect the likelihood that an Intrusive Vowel will be present?
- Do any of these factors affect the length of an Intrusive Vowel?

Methods

- Subjects:
  - 6 males, chosen at random from a corpus of 30+ speakers
  - Native speakers of Spanish residing in Santa Cruz, Bolivia
  - Ages 20-66, various educational backgrounds

- Data collection:
  - Subjects recorded in free conversations lasting 30-45 minutes
  - 70-90 words containing /cr/ clusters selected from a random portion of each speaker’s recording

- Data Analysis:
  - Each token was segmented using Praat, identifying the duration of Intrusive V, V’, and Nucleic Vowel, and formant values for Intrusive and Nucleic Vowels
  - For each token, ANOVAs were run on both absolute length of intrusive vowels and on ratio of absolute intrusive vowel length to absolute length of the following nucleic vowel (to control for rate of speech) (p < .05)
  - For each speaker, tokens with vowel lengths that varied more than 2SD from the mean were discarded (3.5%)
  - Chi Square tests were used to determine if vowel height, vowel backness, consonant voicing, consonant place of articulation, stress, type of cluster, or position in word affect presence/absence of an intrusive vowel
  - Tokens analyzed:
    - 144 without intrusive vowel
    - 340 with intrusive vowel

Conclusions and Implications

- The Intrusive Vowel is similar to the following Nucleic Vowel, but shows a clearly reduced vowel space
- No factors that we considered clearly predict if an Intrusive Vowel will appear
- Factors that predict the length of an Intrusive Vowel vary by speaker, and results are inconsistent for different measures of length (absolute vs. ratio), which brings into question the validity of generalizations regarding intrusive vowels based only on absolute length measurements
- More empirical studies of this phenomenon are necessary
  - in order to generalize previous or current results to a larger population
  - to validate theoretical analyses based on assumptions about Intrusive Vowels

Selected References